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ADAMS & ADAMS  
Masada Building,  
Pretoria.

REPUBLIC OF SOUTH AFRICA

78322

Patent Form No. 1B  
(Non-Convention)

THE PATENTS ACT, 1952, AS AMENDED.

APPLICATION FOR A PATENT OF ADDITION.  
(With Authorisation of Agent)

8th AUGUST, 1974.

Filing date and Application No. 74/5092

Full Name(s) of applicant(s) : SCREENEX WIRE WEAVING MANUFACTURERS (PROPRIETARY) LIMITED

Address(es) of applicant(s) : 156 Chris Street, Alrode,  
ALBERTON, Transvaal Province,  
Republic of South Africa.

Full Name(s) of inventor(s) : MANFRED FRANZ AXEL FREISSE

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USE ONLY

I/We do hereby declare that ~~xxx~~/we are in possession of an invention the title of which is  
"WEAR-RESISTANT ELEMENT"

~~xxx~~/We are the assignee(s)/~~xxx~~ of the inventor(s). The said invention is an improvement in or modification of ~~xxx~~/our invention for which a patent was applied for/~~xxx~~ under number (of main patent or patent application) i.e. 73/5815

To the best of ~~xxx~~/our knowledge and belief there is no lawful ground for objection to the grant of a patent to ~~xxx~~/us on this application; I/We pray that a patent be granted to ~~xxx~~/us for the said invention and that the term of such further patent may be the same as that of the patent for the main invention or so much of that term as is unexpired.

I/We enclose the provisional/complete specification.

~~I/We hereby appoint the partners and qualified staff of the firm of ADAMS & ADAMS jointly and severally to act for me/us in all matters relating to this application and any letters patent granted thereon.~~

Dated this 16th day of July 19 75

Address for service:  
C/o ADAMS & ADAMS,  
MASADA BUILDING,  
CORNER OF PAUL KRUGER  
& PROES STREETS,  
PRETORIA.

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Table of Classification	
Class	Sub-Class

Signature of Applicant's and Capacity.

*Director.*

**PATENTS**  
**FORM NO. 3**

A. & A. Ref. No. 78322

**ADAMS & ADAMS**  
**PATENT ATTORNEYS**  
MASADA BUILDING  
PRETORIA

REGISTRAR OF PATENTS, TRADE MARKS AND COMPANIES	
POGBUS 428	1974
8-8	1974
PRETORIA	

**REPUBLIC OF SOUTH AFRICA**

The Patents Act, 1952

**COMPLETE SPECIFICATION**

PATENT APPLICATION NO. 74/5092  
PATENT OF ADDITION TO PATENT  
73/5815

Here insert (in full) name, address of applicant(s) as in application form.

(a)

**SCREENEX WIRE WEAVING MANUFACTURERS (PROPRIETARY) LIMITED**

156 Chris Street, Alrode,  
ALBERTON, Transvaal Province,  
Republic of South Africa.

Here insert title (verbally agreeing with that in the application form.)

(b)

**"WEAR-RESISTANT ELEMENT"**

1/We do hereby declare this invention, the manner in which and the method by which it is to be performed, to be particularly described and ascertained in and by the following statement :-

THIS INVENTION relates to a wear-resistant element. The invention also relates to a screen which includes such a wear-resistant element, to a lining which includes such a wear-resistant element, to a mould for making such a wear-resistant element, and to support means for supporting such a wear-resistant element.

According to the invention there is provided a wear-resistant element which is of a panel shape and is of an elastomeric material and has spaced recessed formations of shapes complementary to protruding nodule-like securing formations on support means to releasably frictionally secure the element to the support means by releasable engagement of the securing formations

in the recessed formations and by resilient deformation of the elastomeric material.

Further according to the invention there is provided support means for supporting a wear-resistant element in accordance with the invention, the support means including protruding nodul - like securing formations which are releasably engageable with recessed formations in the wear-resistant element to thereby releasably secure the element to the support means.

The recessed formations may be bores or sockets or parts of bores or sockets.

The wear-resistant element may be of a resilient material such as a suitable synthetic plastics material. The synthetic plastics material may be mouldable and may be polyurethane.

The wear-resistant element may have a thickened surrounding marginal region in which the recessed formations may be provided. The thickened marginal region may have a shoulder projecting from the marginal region and be adapted to key in an overlapping fashion into corresponding shoulders provided on adjacent panels. Thus, if a panel is worn it may be replaced by removing it from the support means and fitting a new panel.

If desired, the panels may be reinforced by means of steel or other reinforcement embedded in the panel. Conveniently, reinforcement may also be provided in the projecting shoulder.

The recessed formations may converge into the

element and may have a neck or a shoulder adapted to engage a complementary shoulder or neck provided on the protruding formations to thereby secure the panel to the protruding formations. The cross-sectional profile of the recessed formations may therefore be in the shape of an arrowhead.

The protruding formations may have stems of uniform cross-section. Enlarged heads may be provided on the stems. The enlarged heads may converge away from the stems. Alternatively, the protruding formations may be T-shaped.

The support means may include an elongate member on which the protruding formations may be provided. The elongate member may be a channel having a U-shaped cross-section. The protruding formations may be fast with the channel e.g. by means of welding or forging, or by being integrally formed with the channel such as by moulding it, forging it, extruding it, or machining it from one piece of material such as a metal, e.g. steel. The elongate member may be provided in the form of a frame.

The arrangement may be such that the wear-resistant element is tensioned when it is secured to the support means. To effect this the protruding formations may be slightly off-set with respect to the recessed formations.

The recessed formations may be so arranged that one set of protruding formations can engage the formations on two adjacent wear-resistant elements to thereby secure the elements simultaneously adjacent one another.

In an alternative arrangement, two laterally spaced

rows of protruding formations may be provided on the support means, the lateral spacing between the protruding formations being such that two wear-resistant elements are secured adjacent one another to the support means.

The invention also extends to a screening element which is in the form of wear-resistant element according to the invention provided with screening apertures.

The screening apertures may diverge from the upstream side to the downstream side of the screen.

The screening element may be suitable for screening particulate materials such as mineral ores.

The invention still further extends to a screen including a screening element in accordance with the invention.

Still further the invention extends to a lining which includes a wear-resistant element in accordance with the invention.

The lining may be suitable for lining bins, chutes and the like.

The invention also extends to a mould having a moulding cavity complementary to the shape of a wear-resistant element in accordance with the invention.

The invention will now be described by way of examples with reference to the accompanying drawings in which:-

Figure 1 shows a plan view of a wear-resistant panel in accordance with the invention;

Figure 2 shows a fragmentary sectional view on an

enlarged scale on line II-II of the panel shown in Figure 1, and showing a support member to which the panel is secured;

Figure 3 shows a view similar to Figure 2 but with two adjacent panels secured to a common support member;

Figure 4 shows a view similar to Figure 3 but with another form of support member;

Figure 5 shows a view similar to Figure 3 but with another form of support member;

Figure 6 shows a view similar to Figure 3 but with another form of member;

Figure 7 shows a view similar to Figure 3 but with another form of panel and another form of support member; and

Figure 8 shows a fragmentary plan view of the support member shown in Figure 7.

Referring to Figure 1 of the drawings, reference numeral 10 indicates in general a wear-resistant element in accordance with the invention which is in the form of a panel 12 having a thickened marginal region 14. A series of spaced apertures 16 are provided in the bottom of the thickened marginal region 14. The wear-resistant element 10 is of a synthetic plastics material such as polyurethane, and is moulded in this form.

The element 10 may be used as a lining for lining chutes, bins and the like. In this use the panel 12 is solid. Alternatively, the panel 12 may have screening apertures, (not shown in Figure 1), and in this form the element 10 may be a screening element for screening particulate materials such as mineral ores. The screening element 10 is removably securable by means of the apertures 16 to support members which will be described in greater detail with reference to the other Figures



of the drawings. The arrangement is such that when the element 10 is secured to the support member, the panel 12 is tensioned.

Figure 2 shows on an enlarged scale the wear-resistant element 10 secured to a support member 18. The support member 18 is a U-shaped metal section, for example an extruded or rolled steel section having a plurality of spaced protruding nodule-like formations in the form of conical studs 20 having stems 22. The studs 20 and stems 22 engage frictionally with the sockets 16 which are complementarily shaped. Since the material from which the element 10 is made is a resilient material such as polyurethane, the studs 20 are inserted into the apertures 16 by deforming the material in which the sockets 16 are provided. When the studs 20 have engaged the sockets 16, the shoulder 24 provided on each stud which is larger than the stem 22 ensures a frictional fit between the stud and the socket, and thereby the element 10 is secured to the support member 18. The element 10 may be released from the support member 18 by forcing the marginal region 14 away from the stud 20.

Figure 3 shows two elements 10 in a side-by-side abutting relationship secured by a series of conical studs 20 and stems 22 provided on a support member 26. In this arrangement the marginal region 14 of each element 10 is provided with a series of half sockets 28 conforming to one half of the stud 20 and the stem 22. With this arrangement one support member 26 and one row of studs 20 can engage two panels 10 simultaneously in an abutting relationship adjacent one another.

Figure 4 shows an alternative form of support member 30 having two laterally spaced rows of studs 20 and stems 22 engaging

s ckets 16 in the marginal regions 14 of two adjacent elements 10.

Figure 5 shows a still further alternative arrangement for simultaneously securing two elements 10 adjacent one another. In this arrangement there is provided a support member 32 having a row of longitudinally spaced T-shaped protrusions 34. In the marginal region 14 of each element 10 there is provided a row of longitudinally spaced half sockets 36 which are each in cross-section one half of the profile of a T-shaped protrusion 34. Thereby each protrusion 34 can engage two half sockets 36 simultaneously and can thus secure the two panels 10 simultaneously adjacent one another.

Figure 6 shows a further alternative arrangement in which two elements 10 are secured by means of a series of prongs 38 longitudinally spaced on and protruding sidewardly from a rod 39. Each prong 38 is of a uniform cross-section and can engage simultaneously two sockets 40 provided in opposed positions in the marginal regions 14 of the two elements 10. The rod 39 is held in position by further support means (not shown) such as a frame or bracket or bolts and nuts. In this arrangement the elements 10 are released from the prongs 38 by deformation of the elements away from the prongs 38.

Figure 7 shows a still further alternative arrangement for securing two elements 10 in a side-by-side abutting relationship. In this arrangement each element 10 has a panel 12, a thickened marginal region 14, a flange 42 projecting from the marginal region 14, and a toe portion 44 which is of a complementary shape to the marginal region 14 and the flange 42. A support member 46 is provided which has a row of studs 20 and

stems 22 off-set towards one side of the support member. The studs 20 and stems 22 are adapted to engage sockets 16 of a complementary shape provided in the thickened marginal regions 14. When the studs 20 engage the sockets 16, an adjacent element 10 is fitted by positioning the toe portion 44 to fit into the cavity defined between the flange 42, the thickened region 14 and the support member 46. The studs 20 on the second element 10 are then engaged with the sockets 16 on this element, and thus the two elements 10 are secured adjacent one another with the flange 42 overlapping the toe 44. In this arrangement the panel 12 is a screen having screening apertures 48 diverging from the upstream to the downstream side of the panel. In order to strengthen the flanges 42 and the toes 44, they are reinforced with bars 50 and 52.

Referring to Figure 8, a plan view of the support member 46 of Figure 7 is shown. The studs 20 are each of a conical shape and are longitudinally spaced from each other.

Having now particularly described and ascertained our said invention and in what manner the same is to be performed, we declare that what we claim is:

1. A wear-resistant element which is of a panel shape and is of an elastomeric material and has spaced recessed formations of shapes complementary to protruding nodule-like securing formations on support means to releasably frictionally secure the element to the support means by releasable engagement of the securing formations in the recessed formations and by resilient deformation of the elastomeric material.
2. A wear-resistant element according to Claim 1, in which the recessed formations are bores or sockets, or parts of bores or sockets.
3. A wear-resistant element according to Claim 1 or Claim 2, in which the panel has a thickened surrounding marginal region, the recessed formations being provided in the thickened region.
4. A wear-resistant element according to Claim 3, in which the thickened surrounding marginal region has a shoulder projecting from the marginal region and is shaped to key in an overlapping fashion into corresponding shoulders provided on similar adjacent elements.
5. A wear-resistant element according to any one of the preceding claims, which includes reinforcement embedded in the element.
6. A wear-resistant element according to any one of the preceding claims, in which the recessed formations are off-set with respect to the protruding formations so that when the recessed

formations engage the protruding formations the element is tensioned.

7. A wear-resistant element according to any one of the preceding claims, in which the recessed formations are so arranged that one set of protruding formations can engage the recessed formations on two adjacent similar wear-resistant elements to thereby secure the elements simultaneously adjacent one another.

8. A wear-resistant element according to any one of the preceding claims, in which the recessed formations converge into the element and have each a shoulder by means of which it can engage a complementary shoulder on the protruding formations.

9. A wear-resistant element according to any one of the preceding claims, in which the elastomeric material is polyurethane.

10. A wear-resistant element substantially as described in the specification and as illustrated in the accompanying drawings.

11. A screening element comprising a wear-resistant element as claimed in any one of Claims 1 to 10 which is provided with screening apertures.

12. A screening element according to Claim 11, in which the screening apertures diverge from the upstream side to the downstream side of the screen.

13. A screen including a screening element as claimed in Claim 11 or Claim 12.

14. A lining including a wear-resistant element as claimed in any one of Claims 1 to 10.

15. A mold having a moulding cavity complementary to the shape of a wear-resistant element as claimed in any one of Claims 1 to 10.

16. Support means for supporting a wear-resistant element as claimed in any one of Claims 1 to 10, the support means including protruding nodule-like securing formations which are releasably engageable with recessed formations in the wear-resistant element to thereby releasably secure the element to the support means.

17. Support means according to Claim 16, in which the protruding formations have uniform cross-sections.

18. Support means according to Claim 16, in which the protruding formations have each a stem and an enlarged head on the stem.

19. Support means according to Claim 18, in which the enlarged head has a shape converging away from the stem.

20. Support means according to Claim 18, in which the protruding formations are of T-shape.

21. Support means according to any one of Claims 16 to 20, which includes an elongate member on which the protruding formations are provided.

22. Support means according to Claim 21, in which the elongate member is channel having a U-shaped cross-section.

23. Support means according to Claim 21 or Claim 22, in which one row of protruding formations is provided on the elongate member.

24. Support means according to Claim 21 or Claim 22 in which two rows of protruding formations are provided on the elongate member in laterally spaced relationship with respect to each other so that two wear-resistant elements may be secured adjacent one another to the support means.

25. Support means substantially as described in the specification and as illustrated in the accompanying drawing

DATED this 8th day of AUGUST, 1975.

{ Public  
Date



ADAMS & ADAMS.  
APPLICANT'S PATENT ATTORNEYS.

207/399

8/1975

SCREENEX WIRE WEAVING MANUFACTURERS  
(PROPRIETARY) LIMITED.

N<sup>o</sup> 74/5092 (PATENT OF ADDITION  
TO PATENT 73/5915) / 10

2 SHEETS  
SHEET 1.0. 1.

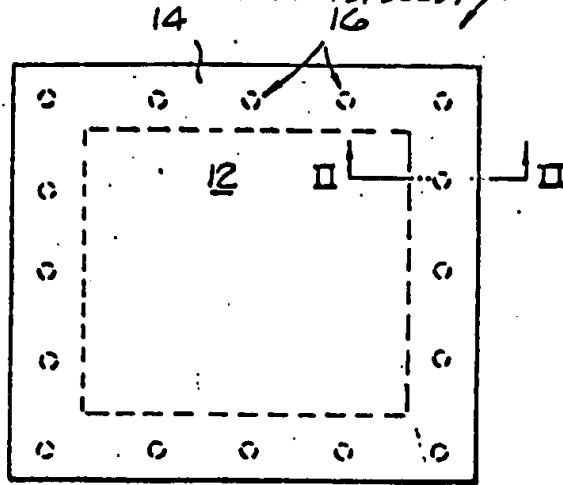


FIG. 1.

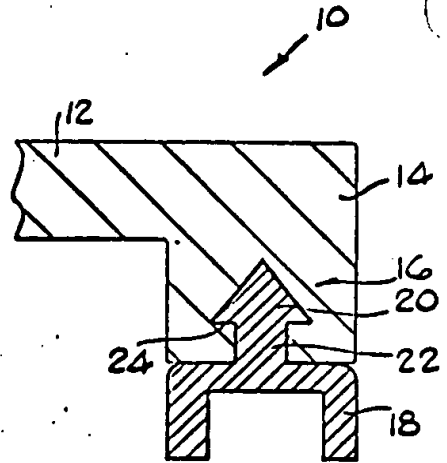


FIG. 2.

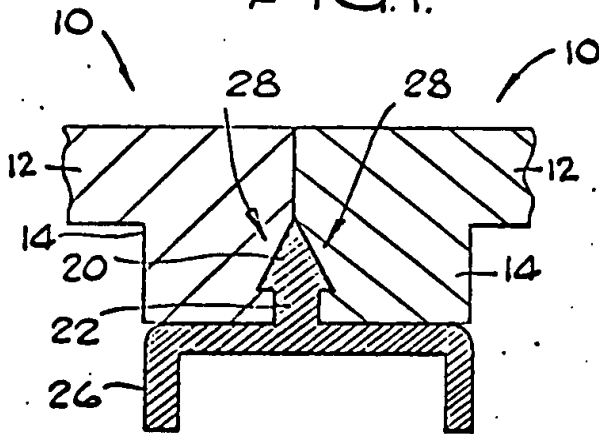


FIG. 3.

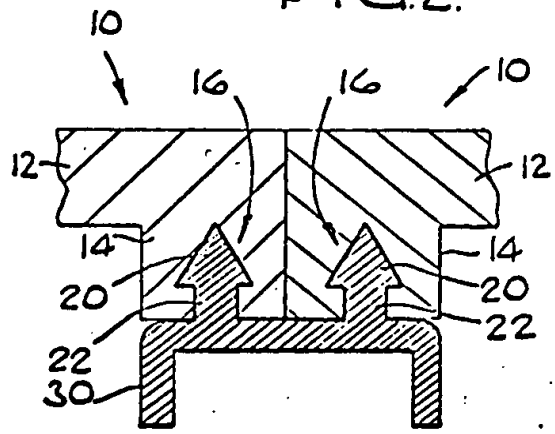


FIG. 4.

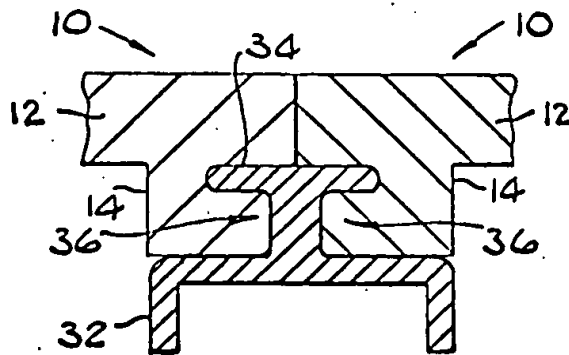


FIG. 5.

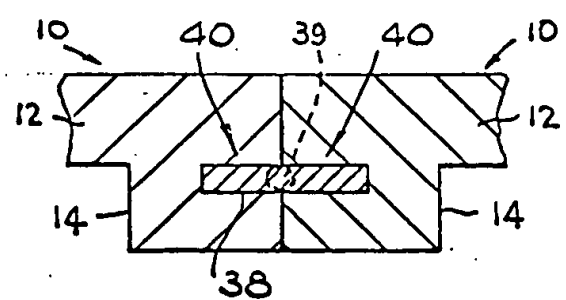


FIG. 6.

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SHEET NO. 2

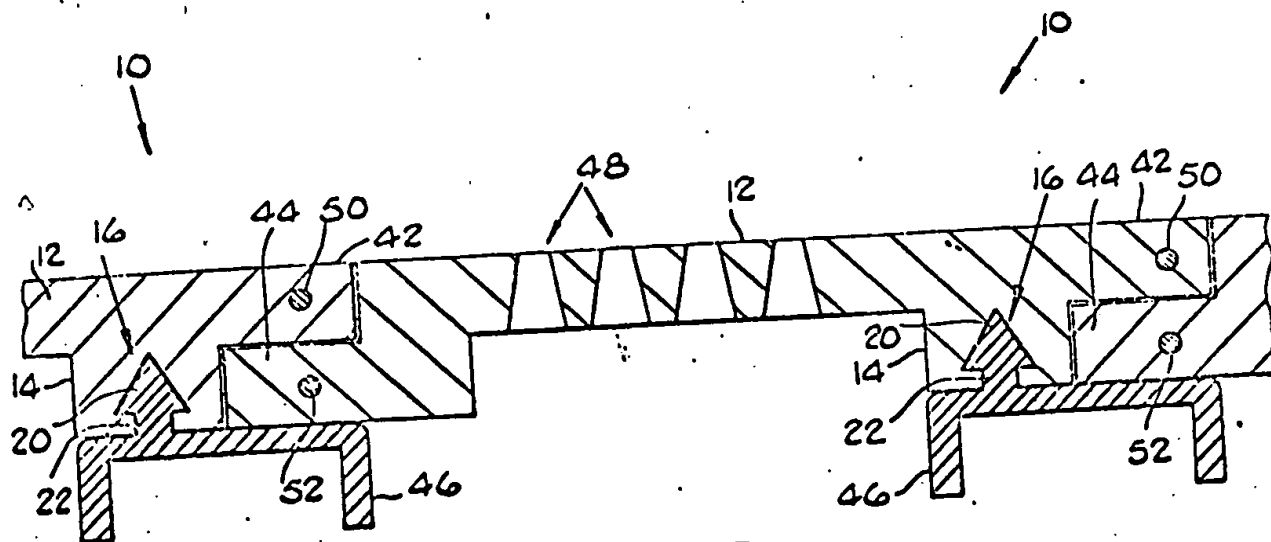
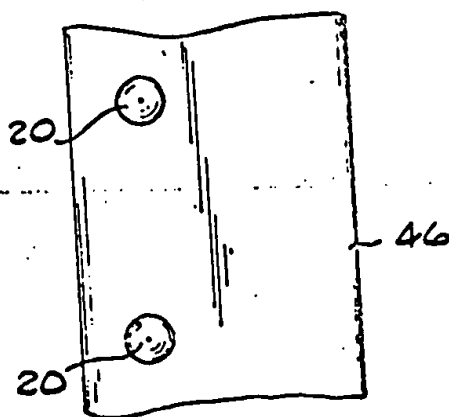


FIG. 7.



FIC.8.

*[Signature]*

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APPLICANT'S DIRECT ATTORNEY